

SEQUENCE LISTING

<110> ROMOND, Pierre-Charles
<110> RENAUD, Michel
<110> ALRIC, Monique
<110> MEINIEL, Olivier
<110> BALLUT, Lionel
<120> METHOD FOR DETECTING MICRO-ORGANISMS
<130> 344 292 - US
<150> PCT/FR 01/02 371
<151> 2001-07-20
<150> FR 00/09 600
<151> 2000-07-21
<150> FR 00/12 524
<151> 2000-10-02
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ggngayggna cnacnacngc nactnt

26

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Primer (UNI-ADEG 2)

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<400> 35
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26

<210> 36
 <211> 26
 <212> DNA
 <213> Artificial sequence

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<220>
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26

22

<210> 37
<211> 26
<212> DNA
<213> Artificial sequence

<220>
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for detecting clostridia (CLO-BNEW2)

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<223> n = a, g, c or t

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atnarrccay twggwgaymg ngtwgt

26

<210> 38
<211> 26
<212> DNA
<213> Artificial sequence

<220>
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for detecting bifidobacteria (BIF-BNEW).

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<220>
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<223> n = a, g, c or t

<400> 38
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26

<210> 39
<211> 26
<212> DNA
<213> Artificial sequence

<220>
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<220>

23

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<400> 39
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26

<210> 40
<211> 26
<212> DNA
<213> Artificial sequence

<220>
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for detecting Bifidobacterium and Mycobacterium (BIF-BNEW2).

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<400> 40
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26

<210> 41
<211> 26
<212> DNA
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<220>

24

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for detecting Helicobacter (HEL-BNEW).

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ntncanccnt tnggnganag ngtnnt

26

<210> 42

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: Consensus sequence
for detecting Campylobacter (CAM-BNEW).

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<223> n = a, g, c or t

<400> 42
ntncanccnt tngqnaancg ngtnct

26

<210> 43
<211> 26
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<213> Artificial sequence

<220>
<223> Description of artificial sequence: Consensus sequence
for detecting bacteroids (BACT-BNEW).

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26

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 <223> n = a, g, c or t

<400> 43
 ntnaancnt tngcngancg ngtnct

26

<210> 44
 <211> 26
 <212> DNA
 <213> Artificial sequence

<220>
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 for detecting Chlamydia (CHLA-BNEW).

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<221> misc_feature

<222> (9)

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<223> n = a, g, c or t

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<221> misc_feature

<222> (24)

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<400> 44

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26

<210> 45

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: Consensus sequence
for detecting Mycoplasma (MYCP-BNEW).

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<400> 45

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26

<210> 46

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: Consensus sequence
for detecting Staphylococcus (STA-BNEW).

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29

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<220>

<221> misc_feature

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<220>

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<400> 46

ntnaaacnn tnggnaancg ngtnat

26

<210> 47

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: Consensus sequence
for detecting Lactococcus and Streptococcus (LACC-BNEW).

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<222> (9)

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<400> 47

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26

<210> 48

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: Consensus sequence
for detecting Lactobacillus and Bacillus (LACB-BNEW).

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30

<400> 48
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26

<210> 49
<211> 26
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<220>
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for detecting Clostridium (CLO-BNEW3).

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<400> 49
atnanaccan tnggngacag ngtngt

26

<210> 50
<211> 26
<212> DNA
<213> Artificial sequence

<220>
<223> Description of artificial sequence: Consensus sequence
for detecting Enterobacteriaceae, Pasteurella, Haemophilus
(ENT-BNEW2).

<220>

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<400> 50
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26

<210> 51
<211> 26
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<220>
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for detecting Neisseria, Legionella (LEG-BNEW).

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<220>

32

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<400> 51
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26

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<210> 52
<211> 26
<212> DNA
<213> Artificial sequence

<220>
<223> Description of artificial sequence: Consensus sequence
      for detecting Aeromonas and Bordetella (AER-BNEW).

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<400> 52
ntnccgncnc tncanganccg ngtat

26

<210> 53
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<213> Artificial sequence

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34

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26

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<400> 54
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26

<210> 55
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35

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26

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36

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26

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26

<210> 59
<211> 26
<212> DNA
<213> Artificial sequence

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<220>
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<222> (18)
<223> n = a, g, c or t/u

<400> 59
aaygcnqayt tygayggnga ycarat

26

37

<210> 60
<211> 26
<212> DNA
<213> Artificial sequence

<220>
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<222> (6)
<223> n = a, g, c or t/u

<220>
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26

<210> 61
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<212> DNA
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26

<210> 62
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<220>
<223> Description of artificial sequence: Primer

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<223> n = a, g, c or t/u

<220>
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<222> (21)
<223> n = a, g, c or t/u

<400> 62

38

atytsttcnc crlcraarlc ngrlll

26

<210> 63

<211> 333

<212> DNA

<213> *Lactobacillus reuteri*

<400> 63

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gaaattcagt	taaagaacat	ggacgaagat	gatgatgaag	ttgtaatgt	tgatgcatta	120
gctaaatatg	cagaagaaca	taaaacagac	gataagaaga	acgaagaaga	aaacaagtct	180
gaagcaactt	caacaactac	cgatgacaaa	actaatcaaa	attaatattt	aggttgctac	240
ggtttactga	aaqaaqqaq	aacatccttt	gattgatgtc	aataaatttg	aaagtatgca	300
gacgqctctg	gcattctccag	ataagatccg	lag			333

<210> 64

<211> 338

<212> DNA

<213> *Bacillus subtilis*

<400> 64

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gaaattgaac	ttcgtgatat	ggatgaagat	tcaagtgaac	acttaaacat	tgattcattg	120
tcacgtatgg	cagaagaaca	agaaaagaag	aagttagccg	aagaaactgg	aaaatcagaa	180
gataagaaag	aaaacaagaa	agatgcagat	aagctagtag	ctcctgcaga	tgaatctgac	240
gacgaagttt	ctaaatagta	ggagggttaa	cttttgatcg	acgtaaataa	atttgaaagt	300
atgcaaattg	gtcttgcate	acctaacaag	atcagaag			338

<210> 65

<211> 329

<212> DNA

<213> *Lactobacillus gasei*

<400> 65

cttggttaagg	aacttcaatc	cttaggtttg	gatattaaag	tcttagatat	ggaccacaag	60
gaaattgaat	tacgtgacat	ggatgatgat	tctaattgac	acttcaacat	tgacacttta	120
tctaagcttg	ctgaacaaca	agaaaagaag	aagttagccg	aagaagctgc	aaagaaagat	180
gataagtcag	ccgaacctgt	agatcagagt	gattcttcaa	cttcatctga	tgataaggtt	240
tctaagtaat	aggaggttaa	acttttgatc	gacgtaaata	agtttgaaag	tatgcaaatt	300
ggtttggtct	ctccaaacaa	gatcaqaag				329

<210> 66

<211> 296

<212> DNA

<213> *Lactobacillus paracasei*

<400> 66

cttggtcaag	aattgcaagc	actgggtctg	gatatgaagg	tccttggcgc	ggataaaaaa	60
gaaattgaac	tgccggacat	ggacgacgac	gaggatgata	ttgtttctgt	cgatgccttg	120
gcgaagtttg	ctgctcagca	ggaagaaaaa	aaggctcacg	aagccgcagc	acaagcaact	180
gacggtaagt	ctgccaacag	taccgacgat	aagaaatagg	aggttagccc	tttgattgat	240
gtcaataagt	ttgaaagtat	gcaaatcggc	ttagcctcgc	cagataaaat	ccgtag	296

<210> 67

<211> 386

<212> DNA

<213> *Lactococcus lactis*

<400> 67

39

ttggttaaag	agttacaatc	acttgggtctt	gatatgaaa	tccllgatgc	tgaccgtaal	60
gttcttgact	tacgtgaatl	ggatgaagat	gaagtaatga	ctcgtccaga	taatacagaa	120
attactccctg	aaatgcttga	agcacaggaa	gctattgttg	cacagcaga	agctgaagaa	180
gaagcttttg	ttaacgctga	tactgaaaaa	taagaltttg	taattaatat	tttgagatag	240
atttactgac	aaaaatttct	gtcagtaaat	ctctaattctc	ataatcgtct	agcgttaaat	300
ttattagaag	tggagaaaga	attggttgat	gtaaataaat	ttgagagtat	gcgtattggt	360
atcgcatctc	cacaaaaaat	tcgtta				386

<210> 68

<211> 344

<212> DNA

<213> *Streptococcus pyogenes*

<400> 68

cttgtaaaag	aattgcaatc	gcttgggtctt	gatatgcgtg	tgcttgacga	ggatgataat	60
gaagtggaa	ttcgtgatct	tgatgaaggt	gaagacgatg	acatttatga	tggttgacgat	120
ctcgagaagg	cacgtgaaaa	acaagctcaa	gaaactcaag	aagtttctga	aacaactgac	180
gaaaaataag	caatcaattc	ttattaaata	attattttact	ggtctggggc	aaaggcccca	240
ggaactggta	aagtcataca	aggcagaaag	gtaaaactag	tggttgacgt	aaatcgtttt	300
aaaagtatgc	aaatcacatt	agcctcacca	agtaaggtcc	gttc		344

<210> 69

<211> 318

<212> DNA

<213> *Lactobacillus helveticus*

<400> 69

llaatcaaa	aacttcaaag	cttaggtatg	gatgtcaaaa	tcctttctgg	tgatgaagaa	60
gaaatagaaa	tgagagattt	agaagacgaa	gaagatgcga	aacaagctga	cggcctggca	120
ttatcaggtg	atgaagagcc	ggaagaaaca	gcatctgcag	acgttgaaacg	cgatgtagta	180
acaaaagaat	aatctctagt	tataaaggca	agtgacatcg	gttaatccga	agataaaaag	240
ggaggtaggc	cccttgctag	atgtgaacaa	ttttgagtat	atgaacatcg	gtcttgcttc	300
accagataaa	atccgttc					318

<210> 70

<211> 318

<212> DNA

<213> *Bacillus subtilis*

<400> 70

tteatcaaa	aacttcaaag	cttaggtatg	gatgtcaaaa	tcctttctgg	tgatgaagaa	60
gaaatagaaa	tgagagattt	agaagacgaa	gaagatgcga	aacaagctga	cggcctggca	120
ttatcaggtg	atgaagagcc	ggaagaaaca	gcatctgcag	acgttgaaacg	cgatgtagta	180
acaaaagaat	aatctctagt	tataaaggca	agtgacatcg	gttaatccga	agataaaaag	240
ggaggtaggc	cccttgctag	atgtgaacaa	ttttgagtat	atgaacatcg	gtcttgcttc	300
accagataaa	atccgttc					318

<210> 71

<211> 304

<212> DNA

<213> *Bacillus halodurans*

<400> 71

cttataaaa	agctacagtc	tctcgggtatg	gacgtcaaga	tgctatcaag	tactgaggaa	60
gagattgaaa	tgaaagagct	tgatgatgag	gatgaacaag	caagcgacaa	attgaacttg	120
aatattgatt	caacagaatc	aaatgtttta	tcagctgaaa	ggggagcagt	cccctttcac	180
ttgctcttta	aattcgcttac	ctgcttttgg	acatggaaat	cataaggagg	gttggccctt	240
tgatagacgt	aaacaatttt	gagtacatga	aaattgggtct	tgcttcacca	aataaaaattc	300
gttc						304

40

<210> 72
 <211> 363
 <212> DNA
 <213> *Staphylococcus aureus*

<400> 72
 ttgatgaaag aattacaaag tttaggltta gatgtaaaaq ttatggatga gcaagataat 60
 gaaatcgaaa tgacagacgt tgatgacgat gatgtttag aacgcaaagt agatttataa 120
 caaaatgatg ctctgaaac acaaaaagaa gttactgatt aatacgcaat ttacaaaaca 180
 ggcaaaaaga tactaagclg aattttattg atgattcagt ttagtacttt aagccatttt 240
 aaataaatgc aaatcaatca aatagcacag ctaatctaaa ttgaaggagg taggctcctt 300
 gattgatgta aataatttcc attatatgaa aataaggattg qcttcacctg aaaaaatccg 360
 ttc 363

<210> 73
 <211> 352
 <212> DNA
 <213> *Clostridium spiroforme*

<400> 73
 ttaaagaaag agttacaagc acttgcatgt gatgtacgtt tgtagatga aaatgataat 60
 gaagttgata tgcgtaatat tgaagaagag gaacatcgtt tcccgogtag cattgataaa 120
 gatgaagtaa ttgaaactcc aaaaactgat gatgaagttt ccgaagaaat tactgaagat 180
 gatttaaatg tagaagaaat tgacgtatgt gaagaagata actttgagga caatgacttc 240
 gaagacaatg atattgaaga aagtgaatca ttataggagg aattacgatg gcaaatataa 300
 ataaattctc agcgattcaa attggtttag cttcgcttca gaagattcgc ga 352

<210> 74
 <211> 358
 <212> DNA
 <213> *Clostridium leptum*

<400> 74
 ctcatataag agcttcagtc cctgggcctg gatgtaaaag tgctggataa ggatgagcag 60
 gagatcgacc taaagcagaa ctttgacgac gatgacgata tcggcttgaa cgacggcggc 120
 accattcttg aggaggatga agtcatgacc tccatggatg gctacacccct ggaggacgat 180
 ccggacgata acaacatgtt tgacgattec ggcttttttg acgaagacgg agacgatcct 240
 ttggattttg attccattgc aagtgatatt cgtgaagaat aaggaggggc gataggatgg 300
 agtttaacgt ttttgagtca attaaaatcg gactggcctc tccggataaa attcgaga 358

<210> 75
 <211> 376
 <212> DNA
 <213> *Clostridium nexile*

<400> 75
 ctcttgaaag aacttcagtc actgggactt gacgtgagag tattgctgta agatcagaca 60
 gaagttgaga ttatggagac aatcgattac ggtgaaacag atttacattc aattattgaa 120
 ggagacagaa gatacaattc tgagaatgaa tcttatggag aacatgggtt cagtcagcag 180
 gaatttgacg gcgaggaact tgtggatgta gaggaagatg aatttgatga accggatgat 240
 atcgattttg acgatatgtt agacgaagaa taggaggatt gccataatg ccagtaacaa 300
 ataatgaacc agcataccag ccgatgactt ttgatgcatg caaaatcggt ttggcgtcac 360
 ctgaaaaaat cttgga 376

<210> 76
 <211> 391
 <212> DNA

<213> Ruminococcus hydrogenotrophicus

<400> 76

ctcttaaaag	aacttcagtc	cctgggtctg	gacgtgagag	tcctcaacga	agaccagacc	60
gaggtggaga	tcattggagag	cgtggattac	ggtgatacag	atctgcactc	catcattgag	120
ggagatcgtc	atcgttcgca	ggatgagtc	tacggagcaa	tgggatatac	gaagcagya	180
ttttccggtg	aagagctggt	agacatcgac	gagagtgaag	acgacagcga	agacgaagat	240
gaagatttga	ttgaattgga	agattctctt	gacagagaag	agtagaaagg	ggtaagaaac	300
aatggcaga	aatgaacaac	aatgaaacct	atcagccaat	gactttcgat	gccatcaaaa	360
tcggactggc	gtcccctgag	aaaatcagag	a			391

<210> 77

<211> 182

<212> DNA

<213> Chlamydia muridarum

<400> 77

ttgattaaag	aaatgcaagg	tctagggctc	gatgttcgcc	ctatggtagt	agatgcttaa	60
aaaacacttg	ttggagataa	gttaatgttc	aaagaagggt	ctcgagacga	tgcagcccta	120
gcaaaagaag	ggctgtttga	taagttagaa	attgggattg	cttcagatgt	gactattcgc	180
ga						182

<210> 78

<211> 182

<212> DNA

<213> Chlamydia trachomatis

<400> 78

ttgattaaag	aaatgcaagg	tctagggctt	gatgttcgcc	ctatggtagt	agatgcttaa	60
aaaacacttg	ttggagagaa	gttaatgttc	agagaagggt	ctcgagacga	tgcagcccta	120
gtaaaagaag	ggctgtttga	taagttagaa	attgggattg	cttcagatgt	gactattcgc	180
ga						182

<210> 79

<211> 181

<212> DNA

<213> Chlamydomphila pneumoniae

<400> 79

ctaattaaag	agatgcaggg	tctaggactt	gatgttcgtc	ctatggtcgt	agacgcttaa	60
aaaatgacgt	tttgagagaa	ataatgttcg	gagaaaattc	tcgagacatt	ggagttcttt	120
ctaaagaagg	actatttgat	aaattagaga	taggcatagc	ttcagatatt	acaattcgtg	180
a						181

<210> 80

<211> 181

<212> DNA

<213> Chlamydomphila pneumoniae

<400> 80

ctaattaaag	agatgcaggg	tctaggactt	gatgttcgtc	ctatggtcgt	agacgcttaa	60
aaaatgacgt	tttgagagaa	ataatgttcg	gagaaaattc	tcgagacatt	ggagttcttt	120
ctaaagaagg	actatttgat	aaallagaga	taggcatagc	ttcagatatt	acaattcgtg	180
a						181

<210> 81

<211> 181

<212> DNA

42

<213> *Chlamydomonas reinhardtii*

<400> 81

ctaatataag	agatgcagg	tctaggactt	gatgttcgtc	ctatggctgt	agacgcttaa	60
aaaatgacgt	tttggagaaa	ataatgttcg	gagaaaattc	tcgagacatt	ggagttcttt	120
ctaaagaagg	actatttgat	aaattagaga	taggcatagc	ttcagatatt	acaattcgtg	180
a						181

<210> 82

<211> 225

<212> DNA

<213> *Klebsiella pneumoniae*

<400> 82

ttgttgaaa	agattcgttc	gctgggtatc	aacatcgaac	tggaagacga	gtaattctcg	60
ctcaaacagg	tcaactgctgt	cgggttaaaa	cccggcagcg	gattgtgcta	actccgacgg	120
gagcaaatcc	gtgaaagatt	tattaaagtt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgac	aaaattgctc	tggttcgcgc	agacatgac	cgttc		225

<210> 83

<211> 225

<212> DNA

<213> *Escherichia coli*

<400> 83

ttgttgaaa	agattcgttc	gctgggtatc	aacatcgaac	tggaagacga	gtaattctcg	60
ctcaaacagg	tcaactgctgt	cgggttaaaa	cccggcagcg	gattgtgcta	actccgacgg	120
gagcaaatcc	gtgaaagatt	tattaaagtt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgac	aaaattgctc	tggttcgcgc	agacatgac	cgttc		225

<210> 84

<211> 225

<212> DNA

<213> *Escherichia coli*

<400> 84

ttgttgaaa	agattcgttc	gctgggtatc	aacatcgaac	tggaagacga	gtaattctcg	60
ctcaaacagg	tcaactgctgt	cgggttaaaa	cccggcagcg	gattgtgcta	actccgacgg	120
gagcaaatcc	gtgaaagatt	tattaaagtt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgac	aaaattgctc	tggttcgcgc	agacatgac	cgttc		225

<210> 85

<211> 225

<212> DNA

<213> *Escherichia coli*

<400> 85

ttgttgaaa	agattcgttc	gctgggtatc	aacatcgaac	tggaagacga	gtaattctcg	60
ctcaaacagg	tcaactgctgt	cgggttaaaa	cccggcagcg	gattgtgcta	actccgacgg	120
gagcaaatcc	gtgaaagatt	tattaaagtt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgac	aaaattgctc	tggttcgcgc	agacatgac	cgttc		225

<210> 86

<211> 225

<212> DNA

<213> *Escherichia coli*

<400> 86

43

ttggtgaaag	agattcgctc	gctgggtatc	aacatcgaac	tggaagacga	glaallclcg	60
ctcaaacagg	tcactgctgt	cgggglaaaa	cccggcagcg	gallgtgcta	actccgacgg	120
gagcaaatcc	gtgaaagatt	tattaaaagt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgalc	aaaattgctc	tggtctcgcc	agacatgata	cgttc		225

<210> 87

<211> 225

<212> DNA

<213> *Salmonella typhimurium*

<400> 87

ctggtgaaag	agatccgctc	gctgggcata	aacatcgaac	tggaagacga	gtaattctcg	60
ctcaaacagg	tcactggtgt	cggggtaaaa	cccgcaccca	gattgtgcta	actccgacgg	120
gagcaaatcc	gtgaaagatt	tattaaaagt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgata	aaaattgctc	tggtctcgcc	agacatgata	cgttc		225

<210> 88

<211> 225

<212> DNA

<213> *Enterobacter cloacae*

<400> 88

ctggtgaaag	agattcgctc	gctgggtatc	aacatcgaac	tggaagacga	gtaattctcg	60
ctcaaacagg	tcactggtgc	cggggttaacc	cccgcacccg	gattgtgcta	actccgacgg	120
gagcaaatcc	gtgaaagatt	tattaaaagt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgata	aaaattgctc	tggtctcgcc	agacatgata	cgttc		225

<210> 89

<211> 225

<212> DNA

<213> *Citrobacter freundii*

<400> 89

ctggtgaaag	agattcgctc	gctgggtatc	aacatcgagc	tggaagacga	gtaactctcg	60
atcaaacagg	tcactggtgc	tggtgtaata	gccagcgcca	gattgtgcta	actccgacgg	120
gagcaaatcc	gtgaaagatt	tattaaaagt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgata	aaaattgctc	tggtctcgcc	agacatgata	cgttc		225

<210> 90

<211> 225

<212> DNA

<213> *Klebsiella oxytoca*

<400> 90

ttggtgaaag	agattcgctc	gctgggcata	aacatcgaac	tggaagacga	gtaactctcg	60
ctcaaacagg	tcactggtgc	cggggttaaga	cccgcgcca	gattgtgcta	actccgacgg	120
gagcaaatcc	gtgaaagatt	tattaaaagt	tctgaaagcg	cagactaaaa	ccgaagagtt	180
tgatgcgata	aaaattgctc	tggtctcgcc	agacatgata	cgttc		225

<210> 91

<211> 267

<212> DNA

<213> *Serratia liquefaciens*

<400> 91

ctggtgaaag	aaatccgctc	gctcggtatc	aacatcgaac	tggaagacga	gtaatcggtt	60
ttccagctca	ggctcccggc	cttagggagc	ctgaggggtg	ttgttcaggt	cacacgggtg	120
cgcgatttgt	cagcgtgcac	ccaacaggtt	taactccgac	aggagccaat	ccgtgaaaga	180

44

cttattgaag tttctgaaag cgcaaaactaa gaccgaagag tttgatgcga tcaagattgc 240
tctggcatcg ccagacatga lccyllc 267

<210> 92
<211> 267
<212> DNA
<213> *Serratia marcescens*

<400> 92
ctgttgaaag aaatccgctc gctcggcatc aacatcgaac tggaaagacga gtaatcgtca 60
tgccggctca ggctccccgc ctaagggaac ctgagggtgg ttgttcaggt cacacgggta 120
cctactgcgg ttgtgggtac ccaacagggt taactccgac aggagccaat ccgtgaaaqa 180
cttattgaag tttctgaaag cgcataactaa gaccgaagag tttgatgcga tcaagattgc 240
tctggcctcg ccaqacatga tccgttc 267

<210> 93
<211> 257
<212> DNA
<213> *Morganella morganii*

<400> 93
ttgttgaaag aaatccgctc cctcggcatc aatatcgagc tggaaagacga gtaattaccg 60
ttgtggctgc ccgtggtaca cgggcagcac cagttaatct gggttaaggg acaaacagac 120
gaccgtttgt ctcacaggtc taactccgac aggagccatt tctgtaaaga cttattaaag 180
tttctgaaag cgcaaaccaa gaccgaagag tttgatgcga tcaaaattgg tctggcctca 240
cctgacatga ttcgttc 257

<210> 94
<211> 271
<212> DNA
<213> *Proteus mirabilis*

<400> 94
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ccatgaaagc agactgctaa atatggcagt ctgctaaaca gtgactacac tgggttaag 120
gggtgaatga caggggtcat ttgcctggca ggtctaactc cgacaggagc catttcgtga 180
aagacttatt aaagtctctg aaagcgcaaa ccaagaccga agagtctgat gcgatcaaaa 240
ttgctctggc atcacctgat atgatccgtt c 271

<210> 95
<211> 253
<212> DNA
<213> *VIBRIO CHOLERA*

<400> 95
ctgttgaaag agatccgctc gctcggcatc aacatcgagc tagaagacga ataataaacc 60
ctaagggttc cccgcaaggg gaagcctacc gggttcggta ggaagggtgt cgttgccaat 120
cgcagcgagt tccttttaac tccttacagg agctgaatgt gaaagactta ttaaactttc 180
taaaagcaca gcataagacc gaagaatttg atcgatcaaa aatcgggtctg gcttcaccag 240
acatgatccg ttc 253

<210> 96
<211> 214
<212> DNA
<213> *Pseudomonas aeruginosa*

<400> 96
ctgatcaaag agatccgctc gctcggcatc gacatcgaac tggaaaccga ataacacgtg 60

45

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acgctaagacg gtgcgggctgg lcaagggccgg lcgacccggg tccgtgagga ggaaaggcct 120
tgaaagactt gcllaalclg ttgaaaaacc agggtcacaaat cgaagagttc gatgccatcc 180
gtattggcct ggcttcgccc gagatgatcc gtcc 214

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<210> 97
 <211> 214
 <212> DNA
 <213> *Pseudomonas aeruginosa*

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<400> 97
ctgatcaaag agatccgttc gtcgggcacg gacatcgaaac tggaaaccga ataacacgtg 60
acgctaagacg gtgcgggctgg tcaaaqcccgg tcgcaccggg tccgtgagga ggaaaggcct 120
tgaaagactt qcttaaatctg ttgaaaaacc agggtcacaaat cgaagagttc gatgccatcc 180
gtattggcct ggcttcgccc gagatgatcc gtcc 214

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<210> 98
 <211> 212
 <212> DNA
 <213> *Pseudomonas putida*

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<400> 98
ttgatcaaag agatccgttc gtcgggcacg gatatcgaaac tggaaaccga ataacacgtg 60
acgcgaaggg gagtggggca ggtaattgtg ctccctgttc cggcaggagg aaaggccttg 120
aaagacctac tgattttgtg gaaaaaccag ggtcaagtgc aagagttcga cgccatccgc 180
atcgggtctg cgtcgccctga aatgatccgt tc 212

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<210> 99
 <211> 228
 <212> DNA
 <213> *Shewanella violacea*

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<400> 99
ttgttgaagg aaatccgttc actcgggtatt aatatcgagt tggatcaaga ctaaaattaa 60
cttaggttaa tttggcaata aattggtgtc ctgcattagc ggggcacccg gtttactcct 120
tcaggagaga aacgtgaaag acttattaaa gtttctgaaa cagcaaaagca agaccgaaga 180
atttaacggt atcaagatcg gactagcgtc accagatctg atccgctc 228

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<210> 100
 <211> 393
 <212> DNA
 <213> *Haemophilus influenzae*

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<400> 100
attatgaaag aaatccgctc acttgggtta aatatcgagt tagacgaaga gtaatcactg 60
attactataa atgggtgctga tcccttggtt ccacccgttt acggggggagc tggcgcgaag 120
actgaggggg gatttatatc ctaagcccc ttccgccctt cgggcacctt ccctcgcaaa 180
gcagggggaa gcaagaggaa caacaacata agatttgaaa tcgccgaagt gcgggtcaaaa 240
ttctccgaaa tttttaaccg cactttaaac cttaactcc gacaggagaa catttgtaa 300
agacttagtt aagtttttaa aagcacaalc aaaaaccagt gaagattttg atgtgattaa 360
aattgggtta gcttccccag atatgatccg ttc 393

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<210> 101
 <211> 262
 <212> DNA
 <213> *Pasteurella multocida*

<400> 101

46

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attatgaaag aaattcgctc gccgggclac aalattgatt tagatgaaga ttaatctgac    60
atcataacca agcttgggtgt aaagcaatgt acgcgcaagt gcgggtaaaa tttttaaaat    120
ttcagccgca cttgaataag ttttaactccg acaggagcaa atctgtgaaa gacttaglta    180
agttttttaa agcacaaatca aaaacaagtg aagattttga tgtgatcaaa attggtttag    240
cctcaccgga catgatccgt tc                                     262

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<210> 102

<211> 306

<212> DNA

<213> *Neisseria meningitidis*

<400> 102

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ttggtcaaaag aqattcgctc actgggcttg gatatcgatt tggaaacgcta ctgatacggg    60
tttcagacgg cataagggga gclgttctgc aggtatgcgg gccagccgac aatgtttaaa    120
aacgaaatgc cgtctgaaaa cactgtacct ctatccatat cgaaaatccg ccatgcggtg    180
aaaatacttc cttcaaggag caaaaatgaa tttgttgaac ttatttaate cgttgcaaac    240
tgccggcatg gaagaagagt ttgatgccat caaaatcggg attgcctctc ccgaaacctat    300
ccgctc                                     306

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<210> 103

<211> 311

<212> DNA

<213> *Neisseria meningitidis*

<400> 103

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ttggtcaaaag agattcgctc actgggcttg gatatcgatt tggaaacgcta ctaaacaata    60
gttttcagac ggcccttcag ggtcgtctga aaaagtgggt tcagaataag aalgaagcaa    120
tcggcattta ggccgtctga aatcaaaaagt accglllccc aalatcgaaa atccgccatg    180
cggtaaaaaat acttccttca aggagcaaaa atgaatttgt tgaacttatt taatccgttg    240
caaaactgccg gcatggaaga agagtttgat gccattaaaa tcggtattgc ctctcccgaa    300
accatccgct c                                     311

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<210> 104

<211> 226

<212> DNA

<213> *Buchnera sp*

<400> 104

```

ctttttaaag aaattcggtc attagggatt aatattgaac taqaaaqcqa ataacaaaat    60
tagcaatatt ataaaaatat ttatqtatta tttatttacc ttaaaagtgt tactccaacg    120
agagctaacq tgtgaaagat ttactaaaat ttctaaaate ccaaaactaaa aatgaagatt    180
ttqatgctat taaaatctcg ttagcttcac ctgatatgat cagatc                                     226

```

<210> 105

<211> 247

<212> DNA

<213> *Xylella fastidiosa*

<400> 105

```

ctcgtgaaaag aaatccgctc cttagcaatt aatattgagt tggaaagataa ctaagatgcg    60
ttgttatgga ttaattcatt tgtttgagg cccagagctc cattgtcctc tgtttccaac    120
tcgtcccgat gcccgatttt cggagaagaa gtatgaaaga tctactcaat ctttttaate    180
agcagcgcca gacattggat ltcgalgcca taaagattgg ccttgccctg cctgccttga    240
ttagatc                                     247

```

<210> 106

<211> 265

<212> DNA

47

<213> *Caulobacter crescentus*

<400> 106

ctgggtcaagg aaatgcgctc gclcggcctg aacgtcgagc tggagaacag ctgatctgga	60
tctccctcct cgcctgcccc tcttaggaag ggtggcggg gaggggcctc ctttcagccc	120
gctctccctc aagaattttc gcgggaaacc ccgcagaagg aaccaagatg aaccaggaag	180
tcctgaacat cttcaatccg gtccaggccg ctccgacctt cgaccagatc cgtatctcgc	240
tcgcctcgcc ggaaaagatc cgctc	265

<210> 107

<211> 325

<212> DNA

<213> *Mesorhizobium loti*

<400> 107

ctcgtcaagg aaatgcgctc tctcggcctc aatgtcgagc tggagaacac caagctcgac	60
gacgcccctg tccggctgcc cgacgcggcc gagtaaggc tacagcgcg cgcacgaagt	120
tgcggcgcg aaagggaattc gacggccggt ggccgacaaa agatggcgg cgtttgccc	180
gcgactagat gcaagggggt ttcgaggacc ccgaaaagga gaacggcatg aaccaagagg	240
tcctgaatct cttcaatccg caggcgctg cgcagggtgt cgattccatc cggatctcac	300
tggccagccc tgagaagatt ctgtc	325

<210> 108

<211> 311

<212> DNA

<213> *Rickettsia prowasekii*

<400> 108

atgataaaaag aatttagatc tttatgtctc aacgtaaagc ttgaagtaac tccaagtaaa	60
taaagtgtat atatgttgta cataatttgt cttgttgtat aatttaaaaa ttgttattgc	120
aagccaaact aaatgaatgt agtgagccat aatgttattt tgratttaag ctatggagta	180
acattttaga gtaggagtaa tttttaggga aaagtattta tgagcgtagt taatttttat	240
ggacaattaa gtaatactca acaatttgac cagataagga ttaatatagc cagtctgat	300
caggtacgtt c	311

<210> 109

<211> 188

<212> DNA

<213> *Borrelia burgdorferi*

<400> 109

ctaattqcaag agcttagagg gcttggactt gatttgtcaa tttatgatga tgctgggaat	60
caggttcctt tgacagaaaa agaagaagaa ttgattaata aaagctaggt ttttgaggtt	120
tttatgaaag agataaaaga ttttgaaaga ataaaaatta aaatagcgct tcccgatcaa	180
attagaaa	188

<210> 110

<211> 197

<212> DNA

<213> *Treponema pallidum*

<400> 110

ttggtgcagg agctgcgggg acttgcgctc gactttacga tttacgatgc gaagggaag	60
cagattccgc tcactgagcg cgatgaagaa atgacgaata agattggctc taaattttaa	120
gggggtgcagg gaatgaagga tatccgggat tttgacagtt tacagataaa gcttgcctcc	180
cctgatacca ttcgggc	197

48

<210> 111
 <211> 159
 <212> DNA
 <213> *Campylobacter jejuni*

<400> 111
 ttaaccaatg agcttaaate tcttgcttta gatgttgaga tttttgataa ggatgaagat 60
 aatgagtaaa ttttaaagtaa tagaaattaa agaagatgca agacctagag attttgaagc 120
 atttcaacta agacttgcaa gtccctgaaaa aatcaaatc 159

<210> 112
 <211> 161
 <212> DNA
 <213> *Helicobacter pylori*

<400> 112
 ttgactaaag aattgcaatc gctcgctttg gatattaata tttttgggga cgatgtggat 60
 gaggatggag caccctaaacc cattgtcatt aaagaagatg acaggcctaa agacttttagc 120
 tctttccagc tcactctagc tagccctgaa aaaatccatt c 161

<210> 113
 <211> 161
 <212> DNA
 <213> *Helicobacter pylori*

<400> 113
 ttgactaaag aattgcagtc gctcgctttg gatattaata tttttgggga cgatgtggat 60
 gaagatggag cgcctagacc cattatgac aaagaagatg acaggcctaa agacttttagc 120
 tctttccagc tcactctagc tagccctgaa aagatccatt c 161

<210> 114
 <211> 175
 <212> DNA
 <213> *Aquifex aeolicus*

<400> 114
 ctcgtaagag agctaaaggc tcttgggcta aacgttaagt gtctgaatgg tgaagagaag 60
 ccttgtgacg aggttgaagt taaagaggag gaagaaaaat gactgaaqca agaaqqqta 120
 tcttccctt ctcaaaaatt aaattgatgc tcgcttctcc cgaggatatt agaag 175

<210> 115
 <211> 175
 <212> DNA
 <213> *Aquifex pyrophilus*

<400> 115
 ctcgttaggg agctcaaagg tctcagcctt aacgttaagt gtatgaacgg tgaggagaag 60
 ccttgtgacc aagttgagat taaagaggag gaagaaaaat gactcacaata ggtaggggta 120
 tctttccttt ctcaaaaatt aagcttatgc tcgcttctcc cgacgatatt agaag 175

<210> 116
 <211> 293
 <212> DNA
 <213> *Deinococcus radiodurans*

<400> 116
 ctgggtcaagg aactccactc gctcggtctg gacgtcgagg tgctcgacca cggcgacaag 60

49

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gcggtggaca tctttgaagg gatgalgccc aagcgclaay gcgcclycgg cactgccaac 120
ccgtcgagca ctglcaaaac glclaaagyl caaacggcca acatctttca gccgttcgac 180
ggtgagacag ttcgacgqgt tgaccaacaa aagagcctcc attccacagg agcctgaatg 240
aaagacttca acaaaagtccg catcgccatc gccagcccgg agaagatccg cga 293

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<210> 117
 <211> 177
 <212> DNA
 <213> *Thermus aquaticus*

```

<400> 117
ctggtgaagg agcttcaggc cctggccctg qacgtqcaqa ccctggacqa gaaqgacaac 60
cccgtggaca tttttgaqqg cctggcctcc aagaggtgag cccttttctg gaggaagat 120
gaaaaaqgaa qtcgcqaagg tccgcacgc cctggcctcc ccgagaaga tccgctc 177

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<210> 118
 <211> 174
 <212> DNA
 <213> *Thermotoga maritima*

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<400> 118
ctcatcaaag aactcagagg tctcgcgctc gatgtgagac tctacgatga gaacggtaac 60
gagatagata tcgacaagta ctgattggga ggttggtaga atgccaatgt cctctttcaa 120
gaggaagata aaggcaattc agataaagat agcctctccg gaagtqataa gaag 174

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<210> 119
 <211> 324
 <212> DNA
 <213> *Streptomyces coelicolor*

```

<400> 119
ctcatcaagg agatgcagtc cctgtgcctc aacgtggagg tgctgtcctc ggacggcatg 60
tccatcgaga tgcgtgacac cgacgaggac gtcttccgag cagcggagga gctcggcatc 120
gacctgtcgc ggcgcgagcc gagcagcgtc gaagaggtct gacgggagtc aggcggggcc 180
tgtctccac aggcccccgc gatcccgca ccccgcttc agaccacaga cttacaaccc 240
tgagagggat tgacgcatag tgctcgacgt caacttcttc gacgagctcc ggatcggctc 300
ggccaccgct gacgacatcc gtca 324

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<210> 120
 <211> 281
 <212> DNA
 <213> *Mycobacterium leprae*

```

<400> 120
ctgctcaaag agttacagtc gctgtgctc aacgtcgagg tgctgtcgtc cgacgggtgcg 60
gcgatcgagt tgcgcgaagg tgaggatgag gacctcgagc gggctgcggc caacctcggt 120
atcaacttgt cccgcaacga atcggcgctc atagaagatc tggcttagcg aacttggcat 180
tatcgtcact aaaccgcga ggggaaagg agttacgtgc tagacgtcaa cttcttcgat 240
gaactccgca ttggcctggc taccgcgag gacattcgtc a 281

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<210> 121
 <211> 277
 <212> DNA
 <213> *Mycobacterium tuberculosis*

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<400> 121
ctgctcaaag aactgcagtc gctgtgcctc aacgtcgagg tgctatcgag tgacgggtgcg 60
gcgatcgaa tgcgcgaagg tgaggacgag gacctggagc gggccgcggc caacctggga 120

```

50

```

atcaatctgt cccgcaacga atccgcaagt gtcgaggatc ttgcgtaaag ctgtcgcaaa 180
attactaaac ccgttagggg aaagggagtt acglgcgcga cglcaaccllc tlcgatgaac 240
lccgcatcgg tcttgctacc gcggaggaca tcaggca 277

```

```

<210> 122
<211> 277
<212> DNA
<213> Mycobacterium tuberculosis

```

```

<400> 122
ctgctcaaaag aactgcagtc gctgtgcctc aacgtcgagg tgctatcgag tgacgggtgcg 60
gcgatcgaac tgcgcgaagg tgaggacgag gacctggagc gggccgcggc caacctggga 120
atcaatctgt cccgcaacga atccgcaagt gtcgaagatc ttgcgtaaag ctgtcgcaaa 180
attactaaac ccgttagggg aaaqqagtt acgtgctcga cgtcaacttc ttcgatgaac 240
tccgcatcgg tcttgctacc gcggaggaca tcaggca 277

```

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<210> 123
<211> 192
<212> DNA
<213> Porphyromonas cangingivalis

```

```

<400> 123
ctcctacacg agctcaaagg tcttggtcta agcttctgta tggagtaata ggcgaggata 60
tgtgattata gttttttcct catcagaata aatctcccat tatatagtta tggcattcaa 120
aagagataca aagataaagg ccaacttcac cegtattaag atcggtatcg cttctcccgga 180
aggggtattg ga 192

```

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<210> 124
<211> 257
<212> DNA
<213> Mycoplasma genitalium

```

```

<400> 124
ttgacaaaag aattacaggg cttggcttta tctgtttcat ttatctatga tgacaacacc 60
caacaagact ccaataatgt ttccatcttg caaagtgatg gggaacaaga tgaatttttc 120
aatgattttg aatttgacac tgagggttat tagaaattaa caatgacaac aacaagacgt 180
aataaaaaga ataacaagct ttataaaaac attaaaagcaa ttaaaccttc catcgcttcc 240
aatgacacca ttttgaa 257

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```

<210> 125
<211> 245
<212> DNA
<213> Mycoplasma pneumoniae

```

```

<400> 125
ttaacgaagg aactacagg gttagcgttg agtgtgtcct ttattttacga tgacaacacc 60
caacaaagatt ccaacaacgt ttcaattctc caagctgatg gagaacagga cgatctcttt 120
aatgactttg aatttgacac ggagggttat taattaatga caaagcgtaa taaaaagaac 180
aacaagctgt acaagaacat taaggcaatt aagcttttga ttgcttccaa cgacacgac 240
ctaaa 245

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<210> 126
<211> 305
<212> DNA
<213> Ureaplasma urealyticum

```

```

<400> 126
ttaacaaaac aaatgcaagg tttagggtta tgtattaccg ttgaaacaaa agatgatcgt 60

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51

atggttagata	ttaatgaata	tacactaat	caaatcgtt	taaalaalga	cgalgalgay	120
qttatttttag	atgaaaatct	aaaagagatc	aalgattcta	atgaagaaat	atthaataca	180
aactttaata	ataatgacta	lgatgatgaa	gagaacttct	aaataataga	aaggtaaaat	240
aatatgaglc	aaaaagggat	taaatcatta	acgatttcca	ttgcttcacc	tgaacaaatt	300
laaa						305

<210> 127

<211> 244

<212> DNA

<213> *Mycoplasma pulmonis*

<400> 127

ttagcctatg	aattaagagq	qctaqaatc	aaacttcaaa	ttcatgaaaa	agaagaagaa	60
aaacaagaac	taccaagcca	agaatatgaa	agtttaaatc	ttgatcaaga	gctaaaaaca	120
qcttctqaaa	atgttagtga	aagttagtct	taattatgcc	aaaaactaga	aaatattcaa	180
cagttgatga	agaaaagatt	ttaaaagtta	gcttatctct	tgcaactaaa	gaagatgttt	240
taga						244

<210> 128

<211> 202

<212> DNA

<213> *Plasmodium falciparum*

<400> 128

atthtaaaag	agttacaaag	tttagctatt	aatatagaag	ctttttgtat	atthaatgat	60
acaaataatt	tattagaaaa	tttacctatt	aatataattt	atthaataatg	ataatacata	120
ataatataaa	ttttatagga	ttaaaattaa	atatattaaa	tcctaaacaa	ataataaaat	180
ggtcttcact	atthttataaa	aa				202

<210> 129

<211> 136

<212> DNA

<213> *Archaeoglobus fulgidus*

<400> 129

cttctggatg	agctgaagtc	aatgatgatc	gtcccgagaa	taattctcgg	agataaggca	60
tgaggtgaaa	tgagatggtg	ccgaagagga	tttcagccat	taaatttgag	gttctctccc	120
cccaagagat	aagaag					136

<210> 130

<211> 169

<212> DNA

<213> *Methanothermobacter thermoautotrophicus*

<400> 130

ttacttctcg	aactcaagag	tctctgtatc	ttcccgaac	tcatactgga	agataaggca	60
tgataatgga	tttaaggga	taacaaaaag	gagagaatac	cttgagagga	atthtaaaaga	120
aaatttccca	gataaacttt	ggcctcatgt	cccccgagga	tatcaggaa		169

<210> 131

<211> 136

<212> DNA

<213> *Halobacterium sp*

<400> 131

ctactcgacg	agatgaaggc	gtcggcatc	gcgccgcgcc	tggaactgga	ggaggcagtg	60
taatgagtg	aggacaagcc	cccaaggaaa	tcggcgaaat	cagcttcggg	ctgatggacc	120
cagaggagta	ccgcga					136

52

<210> 132
 <211> 127
 <212> DNA
 <213> *Thermoplasma volcanium*

<400> 132
 atgagggatg agctgatatc tctcggtggt gttatgcgtc ttatgttggg tgatatgaaa 60
 tgatgggaat tcttaaaaga atttcaagta tttaaatttgc gcttctttct ccagacgaga 120
 taagaaa 127

<210> 133
 <211> 127
 <212> DNA
 <213> *Thermoplasma acidophilum*

<400> 133
 atgagggatg agctgatctc tctcggtggt gttatgaggt taatgctcgg tgatatgaaa 60
 tgatgggaat atcaaaaaga atttcatcaa taaaatttgc ccttctttct ccgcatgaga 120
 taagaaa 127

<210> 134
 <211> 141
 <212> DNA
 <213> *Sulfolobus acidocaldarius*

<400> 134
 ttaattcaag aacttatgag tatggtaatt tcaccgagat taatttttagg tgaaaaagta 60
 aacttaggag gtgcttcaaa tgagttagaa gattatcgg ggcgtaaaat ttggtgtatt 120
 atcacctaatt gaaataaggc a 141

<210> 135
 <211> 145
 <212> DNA
 <213> *Sulfolobus solfataricus*

<400> 135
 ttaattcaag aactaatgag tatgattatc tcacctaggt tagttttgga ggataaaagt 60
 ggattaagtq gaqgttaagg gaaatgagtg aaaagaatat aaaaggaata aagtttgga 120
 tactttctcc tgacgaaata agaaa 145

<210> 136
 <211> 134
 <212> DNA
 <213> *Pyrococcus abyssi*

<400> 136
 ctcttgatg agcttaaggc catggttatt aggccaaagt taaacctcac ggagaggggtg 60
 tgagctatgc aatccgttaa gaagggtatc ggtagtatag agtttggaat tctctcccct 120
 caagaaatta gaaa 134

<210> 137
 <211> 134
 <212> DNA
 <213> *Pyrococcus horikoshii*

<400> 137

53

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cttctggatg agcttaaggc talgulgall agacctaagt taaacctcac ggagaggggtg    60
tgagccatgc actcagllaa gaagggtata ggtagtattg aatttggaat actttccct    120
caagaaatta ggaa                                134

```

```

<210> 138
<211> 224
<212> DNA
<213> Aeropyrum pernix

```

```

<400> 138
ctgctgcagg agataaccag tatgatgata aagccggaac tcaaggtagc cgacaagata    60
tccgtcatca gaaaagtcgt cggcgactat acatgattac cccattttaa ttctcggatt    120
tcgggggtgt tgggtcctat gtctctaagg ctctcggagt tccgcgagac aaaccttcta    180
gataaagatac tctttggcgt cttaagcccc catgagataa ggca                        224

```

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<210> 139
<211> 26
<212> DNA
<213> Artificial sequence

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```

<220>
<223> Primer

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<220>
<221> misc_feature
<222> (6)..(7)
<223> n = a, g, c or t/u

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<220>
<221> misc_feature
<222> (9)
<223> n = a, g, c or t/u

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<220>
<221> misc_feature
<222> (12)
<223> n = a, g, c or t/u

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<220>
<221> misc_feature
<222> (18)
<223> n = a, g, c or t/u

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<220>
<221> misc_feature
<222> (21)
<223> n = a, g, c or t/u

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<220>
<221> misc_feature
<222> (24)
<223> n = a, g, c or t/u<400> 139
marccnntng gngaymgngt natngt

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26

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<210> 140
<211> 186
<212> DNA
<213> Past urella multocida

```

```

<400> 140

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54

gaaaaaattg atggcgaaga aglglllaull alllelgaaa acgalalulll agccallgll	60
gaataatttt lalcaacaac acaaaatcgt tatttctata aataaacaac cttaaaatag	120
caatttgcac aacaagattc gaaatgagag gaagataaaa aatggcagca aaagacgtaa	180
aatttg	186

<210> 141
 <211> 113
 <212> DNA
 <213> Haemophilus influenzae

<400> 141	
gaaaaaatcg atgggtgaaga aqtqtttaac atttctgaaa acqacatcct agcaattqta	60
gaalaattat taaataaqqg aaaagaaaat ggcagcaaaa gacgtaaaat ttg	113

<210> 142
 <211> 113
 <212> DNA
 <213> Haemophilus ducreyi

<400> 142	
gaaaaaattg atggcgaaga aattttaatt ctttcagaga atgacattct tgcaattgta	60
gaataatcga aqaataaggg ataataaaaat ggcaataaaa gacgttaaat ttg	113

<210> 143
 <211> 137
 <212> DNA
 <213> Buchnera aphidicola

<400> 143	
gaaaaaattg ataacgaaga attattaatt ctaactgaaa ggcacatttt agcaattggt	60
gaatagtata ccacatgcta tatcattgaa aattgattta aggggatgtc aaatggccgc	120
taaagatgta aaatttg	137

<210> 144
 <211> 139
 <212> DNA
 <213> Myzus persica

<400> 144	
gaaaaaatta atactgaaga gttattactt ttaactgaaa gtgacatttt agcaattggt	60
gaataatgata ctatatgcta tatccattta aaaatttatt taagggaatg tcaaatggcc	120
gctaaagatg taaaatttg	139

<210> 145
 <211> 144
 <212> DNA
 <213> Vibrio cholerae

<400> 145	
gaaaagatcg atggcaaaga agtgctgac ttggctgaac atgacatttt ggcaatcgtt	60
gaataattga ttctgaatcc caacgaaatc aataactgaa tttagaaagg aaatgaaaaa	120
tggctgctaa agacgtacgt ttg	144

<210> 146
 <211> 137
 <212> DNA

55

<213> Escherichia coli

<400> 146

gagaaatcgc	acaatgaaga	agtgttgatc	atgtccgaaa	gcgacattct	ggcaattggt	60
gaagcgtaat	cctcgacaga	caatgaacat	acgaatttaa	ggaataaaga	taatggcagc	120
taaagacgta	aaattcg					137

<210> 147

<211> 137

<212> DNA

<213> Escherichia coli

<400> 147

gagaaatcgc	acaatgaaga	agtgttgatc	atgtccgaaa	gcgacattct	ggcaattggt	60
gaagcgtaat	cctcgacaga	caatgaacat	acgaatttaa	ggaataaaga	taatggcagc	120
taaagacgta	aaattcg					137

<210> 148

<211> 137

<212> DNA

<213> Escherichia coli

<400> 148

gagaaatcgc	acaatgaaga	agtgttgatc	atgtccgaaa	gcgacattct	ggcaattggt	60
gaagcgtaat	cctcgacaga	caatgaacat	acgaatttaa	ggaataaaga	taatggcagc	120
taaagacgta	aaattcg					137

<210> 149

<211> 142

<212> DNA

<213> Pseudomonas putida

<400> 149

gtgaaagtcg	atggcgaga	cctgctggta	atggccgaga	acgagattct	cgccgttatc	60
gaaggctgat	ttcccgact	tccggttatt	cctaagcatt	tcaaggatta	aacgatcatg	120
gctgctaaag	acgtaaaatt	cg				142

<210> 150

<211> 144

<212> DNA

<213> Pseudomonas aeruginosa

<400> 150

atcaaggtcg	atggcgagga	actgctgggtg	atggcgaggt	ccgaaatcct	cgccgtcctg	60
gaagactgat	cggtctcacc	actccgtttt	caccgaattc	gatttagagg	aaagagaaca	120
tggctgccaa	agaagttaag	ttcg				144

<210> 151

<211> 186

<212> DNA

<213> Neisseria meningitidis

<400> 151

gtaaaagccg	acggcgaga	gctgttggtg	atgcgcgaag	aagatatttt	cggcacgttt	60
gaaaaataaa	tacggacacg	atgccgtctg	aaacggcaaa	ccgccttcag	acggcataaa	120
cggtttttatc	agacagtttt	aatgattttt	ggagaattg	aatggcagca	aaagacgtac	180
aattcg						186

56

<210> 152
 <211> 186
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 152
 gtaaaagccg acggcggaaga gctgttggtg atgcgcgaag aagatatttt cggcatcggt 60
 gaaaaataaa tacggacacg atgccgtctg aaacggcaaa ccgccttcag acggcataaa 120
 cggttttatc agacaqtttt aatgattttt ggagaattga aatggcagca aaagacgtac 180
 agttcg 186

<210> 153
 <211> 185
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<400> 153
 gtaaaagccg acggcggaaga gctgttggtg atgcgcgaag aagatatttt cggcatcggt 60
 gaaaaataaa tacggacacg atgccgtctg aaacggcaaa ccgccttcag acggcataaa 120
 cggttttatc agacagtttt aagatttttg gagaattgaa atggcagcaa aagacgtaca 180
 attcg 185

<210> 154
 <211> 201
 <212> DNA
 <213> *Xylella fastidiosa*

<400> 154
 tacaaggctg aaggcgctga atacaaagta ttacgcgagg acgacatcct ggcgatcatc 60
 ggttgattaa gccaaagccg aaactcgtga atgcatccga catatcacgc caacagcggg 120
 cacattgttc catacatcac taatgttctc atcgcgaatc ttggagtaaa aacataatgg 180
 ctgccaaaga aattattttc a 201

<210> 155
 <211> 224
 <212> DNA
 <213> *Streptomyces coelicolor*

<400> 155
 gtgaagtaca acggcgagga gtacctcgtc ctctcggccc gcgacgtgct cgcgatcgtc 60
 gagaagtaga agtagtactt cgcttcaccg aagcaccttg ctttccagct gcgccctcgg 120
 ctcccgcgac cataaaaagc cgggcgtcgg gggcgagtt gccgtataac cccaagattt 180
 ccggaagagg gctcacgctc ccatggcgaa gatcctgaag ttcg 224

<210> 156
 <211> 185
 <212> DNA
 <213> *Mycobacterium tuberculosis*

<400> 156
 alcaagtaca acggcgagga atacctgac cgtcggcac gcgacgtgct ggccgtcggt 60
 tccaagtagt agagcgtggt ccgccccggc gatccccgtg ctcaccacgg gtgatttcgg 120
 gggcggcacg cgttagcgga ctagccctgc gtagaggagc ctgatgagca agctgatcga 180
 atacg 185

57

<210> 157
 <211> 185
 <212> DNA
 <213> *Mycobacterium tuberculosis*

<400> 157
 atcaagtaca acggcgagga atacctgac ctgtcggcac gcgacgtgct ggccgtcgtt 60
 tccaagtagt agagcgtgtt ccgccccggc gatccccgtg ctcaaccagg gtgatttcg 120
 gggcggcatg cgttagcgga ctgcccctgc ytagaggagc ctgatgagca agclgatcga 180
 atacg 185

<210> 158
 <211> 169
 <212> DNA
 <213> *Mycobacterium leprae*

<400> 158
 atcaagtaca atggcgagga atacctgac ctgtcggcac gtgacgtgct ggctgtcgtt 60
 tccaagtaac gaaccgtgtt ccgccccggc gatccccgtg cttaccacg ggtgatttc 120
 gggcggcatg gcgtttaaag gagcctgatg agcaagctga ttgagtacg 169

<210> 159
 <211> 103
 <212> DNA
 <213> *Thermus aquaticus*

<400> 159
 attgagattg caccgcgaag gacgtacgtg atcctcaccg agcgcgacct gcttgagggtc 60
 ctgcagtaaa ggaggatgaac catggcgaag atcctggtgt ttg 103

<210> 160
 <211> 100
 <212> DNA
 <213> *Thermus thermophilus*

<400> 160
 attgagattg acggcgagga gtacgtgac ctctccgagc gcgacctgct tgcggtcctg 60
 cagtaaagga ggtgaaccat ggcgaagatc ctggtgtttg 100

<210> 161
 <211> 100
 <212> DNA
 <213> *Thermus thermophilus*

<400> 161
 attgagattg acggcgagga gtacgtgac ctctccgagc gcgacctgct tgcggtcctg 60
 cagtaaagga ggtgaactat ggcgaagatc ctggtgtttg 100

<210> 162
 <211> 162
 <212> DNA
 <213> *Deinococcus radiodurans*

<400> 162
 gtcagcctcg aaggcaagaa ctacagcctg ctgagcgagc gcgacctgct cgccattgtc 60
 gagtaaggct ccgagtcagg ttctgagcct gttcgtttcc tgtttttctt cctcatttca 120
 cttttcaagg agcaatcaca atggctaaac agctcgtgtt tg 162

58

<210> 163
 <211> 121
 <212> DNA
 <213> *Porphyromonas gingivalis*

<400> 163
 atagagctgg agggcgaaaa atatatcatc atgcgccaaa acgatgtctt ggcaatcatc 60
 taattctcag agacaataac ctacaataaa aaataaagac tatggcaaaa gaaatcaaat 120
 t 121

<210> 164
 <211> 134
 <212> DNA
 <213> *Bacillus subtilis*

<400> 164
 gtgaaatcag aagggtactga atacttaatc ttacgtgaaa gcgacatttt agctgttatt 60
 ggctaattct taaataaaca atacttaaaa catttgagga ggtcttgtaa acatggcaaaa 120
 agaaattaag tttt 134

<210> 165
 <211> 180
 <212> DNA
 <213> *Bacillus halodurans*

<400> 165
 gtaaaatattg atggtaaaga gtalllaalc ctctcgtgaaa gcgatattct cgcgattatc 60
 ggtaattttt acglagggll atccctacat acatgtaaga cgagagggtt ttgtctattc 120
 ctcttttgta aaataccatt caggagggtg agaataacat ggcaaaaagat attaagttta 180

<210> 166
 <211> 121
 <212> DNA
 <213> *Lactobacillus zeae*

<400> 166
 gtgaagtatg aagggtcaaga ctaccttgta ttgcattgaaa aagacatcat ggcaattgcg 60
 taactaaata atcgatcaat tttgagggtg ataaaaacaa tggcaaaaaga aattaaattc 120
 t 121

<210> 167
 <211> 142
 <212> DNA
 <213> *Clostridium perfringens*

<400> 167
 gttaagttcg agggggaaga atatactatt ttaagacaag acgatatact agcaatagtt 60
 gaatagtttt aaaatataag tgatttagat attcataata tatttgggag gtaaatattt 120
 atggctaaaa cattattatt cg 142

<210> 168
 <211> 120
 <212> DNA
 <213> *Clostridium difficile*

<400> 168
 gttaagatag aaggacaaga atacacaata ctaagacaga gtgatgtatt agctgttatt 60
 gataaaatat agaataaatt tattaggagg ggtttaaaaa ggctaaagaa attaaatttt 120

59

<210> 169
 <211> 129
 <212> DNA
 <213> *Clostridium acetobutylicum*

<400> 169
 ataaaagttg acaatgaaga attgttaatt ttaagacagg acgatatttt aggaattgta 60
 gaagaataag ctatcaattt tgttaataat tcagggaggg attctaaatg gcaaagcaaa 120
 tallatacg 129

<210> 170
 <211> 141
 <212> DNA
 <213> *Lactobacillus helveticus*

<400> 170
 gttgaatagc aaggtgaaaa gtacttagtc cttcatgaaa aagacatttt agcaattgca 60
 aaataattga cgaatttatt agaaattaaa atacgagatt aaggaggcat agataatcta 120
 tggcaaaaga tattaatttc t 141

<210> 171
 <211> 118
 <212> DNA
 <213> *Lactobacillus johnsonii*

<400> 171
 ttgaagtacg aaggcgaaaa gtacttagtt cttcgtgaaa gcgacttatt agctgtcgtt 60
 aagtaataaa atttgaaata aaaggtggca talaalalgg claaayagal laaalllt 118

<210> 172
 <211> 143
 <212> DNA
 <213> *Staphylococcus epidermis*

<400> 172
 gtaaaacgtg gcgcccacac atatttaatt ttaaatgaag aagatatatt agctattata 60
 gaataaagag cgaattttta atattaatta aatgatttaa taagtggagg ttgtttagac 120
 tatggcaaaa gatcttaaat tct 143

<210> 173
 <211> 163
 <212> DNA
 <213> *Staphylococcus aureus*

<400> 173
 gttaaaacgag ataataaaac atatctagta ttaaatgaag aagatatatt agcggtaatt 60
 gaataatata aaattaaatt catagataaa ttgtaaagaa cgaaaatgaa atatgactaa 120
 acaaatggag gtttatcatt tatggtttaa caattgaaat tct 163

<210> 174
 <211> 106
 <212> DNA
 <213> *Streptococcus pneumoniae*

<400> 174
 gtcaaagatg gcgatgaaaa gtacatcatc gtaggcgaag ctaacatttt ggcaatcatt 60
 gaggaataga aggagaaagt aagtatgtca aaagaaatta aatttt 106

60

<210> 175
 <211> 175
 <212> DNA
 <213> *Lactococcus lactis*

<400> 175
 gtaaaaatgg atggtgaaga attcttgatt ctcaaagatt cagaccttct tgcaattgta 60
 gagtaaaatt ataaaagcaa tcattttttt gggtgtcttt tgtctatctt aaaatctata 120
 aaattaaaaa tatattctta aaaaggagct aaaatgtcaa aagatattaa atttt 175

<210> 176
 <211> 111
 <212> DNA
 <213> *Rickettsia prowasekii*

<400> 176
 attgaaataa aaggagaaaa attaatcggt atgaaagaaa gcgatgtatt tggattatt 60
 aattaattat ttttaggaga aaaaatatga caacgaaact tattaaacac g 111

<210> 177
 <211> 129
 <212> DNA
 <213> *Chlamydia muridarum*

<400> 177
 ctactgtcg aaggtgaaga atatgtcatc gttcaaata gcgaagttat agcagtcctg 60
 caataaaaac taagagagtg aagtaagatt taaggagcgc atcgatggc gctaaaaata 120
 llaaalala 129

<210> 178
 <211> 128
 <212> DNA
 <213> *Chlamydia trachomatis*

<400> 178
 ctactgtcg aaggtgaaga gtacgtcatc gttcaaata gcgaagttat cgcagttctg 60
 caataaaaac taagagagtg aagaagattt aaggagcgc tcaatggctg ctaaaaacat 120
 taaatata 128

<210> 179
 <211> 132
 <212> DNA
 <213> *Chlamydia pneumoniae*

<400> 179
 atcacaatcg atgacgaaga gtatgtcatt ctacagtcca gtgaaatcat ggccgtccta 60
 aaataaaaata ctagtgtgca gattatagaa agttaaggag aacaacgatg gcagcgaaaa 120
 atattaaata ta 132

<210> 180
 <211> 132
 <212> DNA
 <213> *Chlamydia pneumoniae*

<400> 180
 atcacaatcg atgacgaaga gtatgtcatt ctacagtcca gtgaaatcat ggccgtccta 60
 aaataaaaata ctagtgtgca gattatagaa agttaaggag aacaacgatg gcagcgaaaa 120

61

atattaaata la 132

<210> 181
<211> 132
<212> DNA
<213> Chlamydomphila pneumoniae

<400> 181
atcacaatcg atgacgaaga gtatgtcatt ctacagtcga gtgaaatcat ggccgtccta 60
aaataaaata ctagtgttga gattatagaa agttaaaggag aacaacgatg gcagcgaaaa 120
atattaaata ta 132

<210> 182
<211> 141
<212> DNA
<213> Chlamydomphila caviae

<400> 182
cttaccgttg atggtgagga gtacgtcatt gttcaggaaa gcgaagttat ggcagttctc 60
aagtaagaga aatcattatt tatagattgc aaaaagttaa ggagcacaaa aaaacaatgg 120
cagcaaaaaa tattaatat a 141

<210> 183
<211> 160
<212> DNA
<213> Helicobacter pylori

<400> 183
ctagaagaca ttctaggcat tgtgggctca ggctcttgtt gtcatacagg taatcatgac 60
cataaacatg ctaaagagca tgaagcttgc tgtcatgac acaaaaaaca ctaaaaacat 120
tattattaag gatacaaaat ggcaaaaga atcaaatttt 160

<210> 184
<211> 160
<212> DNA
<213> Helicobacter pylori

<400> 184
ctagaagaca ttctaggat tgtqqqctca ggctcttgc gtcatacagg taatcatgac 60
cataaacatg ctaaaqaqa tgaagcttgc tgtcatgac acaaaaaaca ctaaaaacat 120
tattattaag gatacaaaat ggcaaaaga atcaaatttt 160

<210> 185
<211> 72
<212> DNA
<213> Campylobacter jejuni

<400> 185
ttagatgata tcttaggaat tttaaaataa tttataaaaa aggataaaaa atggcaaaag 60
aaattatttt tt 72

<210> 186
<211> 136
<212> DNA
<213> Clostridium thermocellum

<400> 186
gtaaaatttg acggacagga atatacgatc ttaagacaaa acgatatttt ggcggtagta 60
gagtaattat attaccaact tcaatacaaa aagtatccta aggaggtaa tcatatggca 120

62

aagcaaataa aatttg

136

<210> 187

<211> 127

<212> DNA

<213> Mycoplasma genitalium

<400> 187

tttgagaatg agggaaacaa gtacaaaatt attggatttg aggatgtact tgcctttgaa 60
aaaccagaaa gtggttaagca aagaaaaaga taaaattaaa caattatggc aaaggaatta 120
atcctttg 127

<210> 188

<211> 138

<212> DNA

<213> Mycoplasma pneumoniae

<400> 188

tttgaagagg aaggtaacaa gtacaagatt atttccttgg aagatgtcct tgcttttgaa 60
aagcatggta atacaaaaac tactactgta aagaaaggag ctaagaaaaa atagttatgg 120
caaaggaatt agtatttg 138

<210> 189

<211> 120

<212> DNA

<213> Aquifex aeolicus

<400> 189

gtagagattg aaggaaagat ttacctcgtt atgtctgaag acgaagtttt agctgttggt 60
gaagattatt caagcttaat aggaggtag gtgagatggc agcaaaggca attatctaca 120